

Subpart H—Continuous Duty, Warning Light, Portable Methane Detectors; Performance and Testing Requirements

§ 29.70 Minimum performance requirements.

(a) Continuous duty, warning light, portable methane detectors shall be self-contained units, practical in operation, portable and suitable for service in underground coal mines.

(b) The detector shall be equipped with an indicating device that contains one or more warning lights designed and constructed to flash in the presence of a methane-air mixture having a methane concentration of 1 percent ± 0.2 percent.

(c) Detectors equipped with batteries shall be constructed so that when such batteries are filled, electrolyte will not spill during use.

(d) Battery containers shall be made of corrosion-resistant material.

§ 29.71 Warning light; performance requirements.

(a) Warning lights contained in the indicating devices of detectors shall:

(1) Be visible within the normal visual field of miners working in the vicinity of the detector;

(2) If incandescent, employ lamps of no less than 0.2 candlepower; or

(3) If light-emitting diodes (LED's), have sufficient intensity to be discernible in the working place of an underground coal mine; and,

(4) Be red in color.

(b) The flash rate of the warning light shall be approximately one flash per second, and the duty cycle shall be sufficiently long to attract attention.

§ 29.72 Accessory quantitative meter; minimum requirements.

(a) In addition to the warning lights described in § 29.71, an accessory meter may be installed in a continuous duty, warning light, portable methane detector, to serve as a quantitative indicator of the presence of methane.

(b) Where an accessory quantitative meter is installed on a detector, it shall meet the following minimum requirements for performance and accuracy:

(1) Accessory quantitative meters shall indicate the presence of methane concentrations as low as 0.25 percent and shall have upper scale limits of 2 percent to 4 percent methane. The indications for these percentages shall be within the limits of error specified in Table C;

(2) Accessory quantitative meters shall make no less than 30 determinations for the presence of methane without replacement of any component part, and no less than 15 such determinations prior to recharging of the battery or other power source; and,

(3) The scale of accessory quantitative meters shall not be subdivided into smaller divisions than is warranted by the general accuracy of the meter.

§ 29.73 Operative period.

Detectors shall be tested to ensure that they operate effectively over a 10-hour period (a) without requiring battery replacement or recharging, and (b) without loss of initial accuracy.

§ 29.74 Calibration adaptors.

(a) Each detector shall be equipped with an adaptor that checks the overall response of the instrument to a premixed, methane-air mixture, having a concentration of not less than 1 percent or more than 3 percent, by volume.

(b) Adaptors shall be compatible with methane calibrating kits marketed for methane monitor calibration.

§ 29.75 Visual indicator device.

Each detector shall be equipped with a device capable of giving a visual indication of the operative condition of the battery and the electrical circuitry employed in the detector.

§ 29.76 Testing requirements.

(a) Continuous duty, warning light, portable methane detectors shall be tested to ensure that they meet the minimum construction and performance requirements set forth in §§ 29.51, 29.52, 29.70, 29.71, 29.73, 29.74, and 29.75.

(b) Accessory quantitative meters shall be tested at several percentages within the limits of error specified in Table C, and at temperatures ranging from 50° and 70° F., with 5° increments.